



REPORT TO THE CITY COUNCIL

January 28, 2010

AGENDA ITEM NO.

COUNCIL MEETING

APPROVED BY

B. Wiemiller
DEPARTMENT DIRECTOR

CITY MANAGER

FROM: PATRICK N. WIEMILLER, Public Works Director
Public Works Department

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SUBJECT: ANNUAL UPDATE OF PRIORITY RANKING LISTS FOR NEW TRAFFIC SIGNAL INSTALLATIONS, TRAFFIC SIGNAL LEFT TURN PHASING AND INTERSECTION TRAFFIC FLOW IMPROVEMENTS

RECOMMENDATION

Staff recommends that the Council receive the updated City-wide priority ranking lists for new traffic signal installations, traffic signal left turn phasing and intersection traffic flow improvements.

EXECUTIVE SUMMARY

Staff has completed the annual update of City-wide priority ranking lists for new traffic signal installations, left turn phasing installations, and traffic flow improvements such as widening for dual left turn lanes that are partially or wholly funded through traffic signal mitigation impact fees. The update of the priority ranking lists includes new traffic counts, analysis of accidents during the past year and engineering consideration of other field changes such as new schools that have opened in the vicinity of the subject intersections. The scoring criteria are based upon traffic engineering adopted standards established by the Federal Highway Administration (FHWA) and the California Department of Transportation. Intersections that have been completed or that have started construction since the last annual report in January 2009 have been removed from the priority ranking lists. It should be noted that this past year since the last update, four intersections were signalized by City capital projects. Numerous other signals were installed by developers and have been removed from the priority ranking worksheets. The ranking lists will be used to prepare the FY11 capital improvement budget in an objective manner based upon available and projected traffic signal mitigation impact fees. Council approved an update of the impact fees and the intersections covered by those fees on October 21, 2008. Attached to this report are the new priority ranking lists for new signal installations, modifications for left turn phasing and traffic flow improvements.

BACKGROUND

Every fall, the Traffic Engineering Section of the Engineering Division conducts updated traffic counts, reviews intersection accident reports and performs an engineering analysis in accordance with adopted standards of the FHWA and California Department of Transportation. This analysis includes 8-hour traffic volumes, peak hour volumes, pedestrian counts, accident history and proximity of schools to the intersections. Unsignalized intersections are analyzed to determine if installation of a traffic signal is warranted. Warrants are evaluated purely using FHWA standards from the Manual on Uniform Traffic Control Devices (MUTCD). Existing signalized intersections that do not have left turn phasing (i.e., protected left turn movements via green arrows) are analyzed to determine if warrants are met for the installation of left turn phasing, which is based upon the number of peak hour conflicts between through traffic and opposing left turning vehicles or the number of accidents that would be correctable with installation of left turn phasing.

Intersections where warrants are met are then objectively scored and ranked in priority order City-wide. The point system for new traffic signal installations conforms to FHWA requirements and is based upon overall traffic volumes for both directions (10 points maximum), peak hour traffic (10 points maximum), three-year history for correctable accidents (5 points per correctable reported collision in the annual average), schools within 0.25 miles (10 points maximum), activity centers within 1,000 feet (3 points maximum), potential signal coordination benefits (5 points maximum), intersection sight distance (2 points maximum), funding opportunities or cost/benefit ratio (2 points maximum) and engineering judgment of special conditions (3 points maximum). The point system for left turn phasing installations is based upon the peak hour product of left turning vehicles and opposing through traffic (5 points maximum), three-year history for correctable accidents (5 points per correctable reported collision in the annual average), schools within 0.25 miles (10 points maximum), activity centers within 1,000 feet (3 points maximum), intersection sight distance (2 points maximum), funding opportunities or cost/benefit ratio (2 points maximum) and engineering judgment of special conditions (3 points maximum).

The third priority ranking list for intersection traffic flow improvements such as widening for dual left turn lanes that are partially or wholly funded through traffic signal mitigation impact fees. The traffic signal mitigation impact fee program includes multiple intersections throughout the City where additional turn lanes are required to mitigate the intersection to Level of Service D with the additional traffic from new development. To date, the City has primarily funded such improvements with Federal transportation grant funds with partial project funding from the impact fee program. Staff has developed this priority list using level of service for existing and future traffic conditions with and without the improvements, cost-effectiveness of dollars spent versus congestion relief, engineering judgment concerning potential for safety improvements and ability to leverage transportation grant funding.

The updated City-wide priority ranking lists are included as Attachments "A", "B" and "C". The priority ranking lists also indicate the funding status of each intersection. Some intersections must be signalized as a condition of approval for a specific development and have been noted as "Developer to Install". Other intersections have been funded as capital improvement projects based upon a high ranking in prior years and/or a successful grant application for State and Federal funds.

The construction schedules have been delayed due to a significant decline in traffic signal mitigation impact fee revenues generated from new development. The average monthly revenue for FY10 (July to November) has been \$35,578, a decrease from FY09 (\$96,472/month), FY08 (\$124,786/month), FY07 (\$248,623/month) and FY06 (\$260,170/month). Given the limited impact fees currently available for capital projects, the Department's goal is to have our current projects "shelf-ready" for construction and also to aggressively pursue alternative funding sources such as Federal and State grants for delivery of these projects.

FISCAL IMPACT

The annual update of traffic signal priority ranking lists has been accomplished within the operating budget of the Public Works Department. There will be no additional impact on the General Fund.

PNW/SLM/BDJ/LB/eam
Annual Update Priority Ranking Traffic Signals List FY 2010 1-28-2010

Attachments: "A" - Priority Ranking List for New Traffic Signals
 "B" - Priority Ranking List for Left Turn Phasing
 "C" – Priority Ranking List for Intersection Traffic Flow Improvements



ATTACHMENT "A"

2010 PRIORITY LIST FOR NEW TRAFFIC SIGNAL INSTALLATIONS

Priority Ranking	Intersection	Council District	% Percent other Jurisdictions	Year Included in TS Impact Fee	School located within 1/4-mile	Total Points	Construction Cost Estimate	Comments
1	Millbrook and Shepherd	6	6	2004	Clovis West High	32.67	\$250,000	Funded by ARRA grant
2	Chestnut and Nees	6	6	2004	Maple Creek Ellem	29.67	\$250,000	Prop 1B funding
3	Maple and Teague	6	3	2007	Lincoln Ellem	27.67	\$290,000	Design Funded
4	Ventura and 99 NB off - ramp	3	50% Cal Trans	2004	Copper Hills Ellem	26.33	\$290,000	Design Funded
5	Bahymer and Maple	6	6	2004	Fort Miller Middle	25.67	\$290,000	Funded by ARRA grant
6	Blackstone and Fedora	7	7	2004	Slater Ellem	25.33	\$290,000	Design Funded
7	Emerson and Marks (north leg)	1	1	2004	Copper Hills Ellem	25.00	\$290,000	Design Funded
8	Maple and Perrin	6	6	2004		23.67	\$250,000	Developer to install
9	Bullard and Cecilia	2	2	2004		23.33	\$250,000	HSIP 2008
10	Hughes and Weber	1	1	2004	Williams Elementary	23.00	\$290,000	Funded by SR2S grant
11	Fruit and Saginaw	1	3	2007	Addams Ellem	23.00	\$400,000	
12	McKinley and SR 99 NB off	3	50% Cal Trans	2007	Sequoia Middle	22.00	\$290,000	
13	Barstow and Brawley	2	2	2006		21.00	\$290,000	Funded by CMAQ grant
14	Cedar and Woodward**	5	5	2004		21.00	\$290,000	Developer to install
15	Shields and Weber	1	1	2004		20.67	\$290,000	RDA funding
16	Chestnut and Shepherd	6	6	2004		19.67	\$290,000	
17	Audubon and Cole	6	5	2004		19.33	\$290,000	
18	Jensen and Willow	5	1	2007	Central High	19.33	\$290,000	
19	Cornelia and Dakota	1	25% County	2004	Gibson Ellem/Bullard	19.00	\$290,000	
20	Barstow and Thorne*	2	2	2004	El Capitan/middle	18.67	\$290,000	
21	Blythe and McKinley	3	3	2007	Storey Ellem	18.67	\$290,000	
22	Blythe and McKinley	5	50% County	2006	McKinley/El Capitan	17.67	\$290,000	
23	Blythe and Weidon	3	25% County	2004	Carver	17.33	\$400,000	HSIP 2008
24	Olive and SR 99 NB off	3	3	2004		17.00	\$290,000	Developer to install
25	Church and MLK King Jr*	3	25% County	2007		17.00	\$300,000	Developer to install
26	Herndon and 99 NB off - ramp	2	2	2004		17.00	\$290,000	Developer to install
27	Hughes and McKinley	3	3	2006	Jane Adams	16.33	\$290,000	
28	Marks and Sierra	2	2	2004		16.00	\$290,000	Developer to install
29	Ingram and Locust	2	2	2006		16.00	\$290,000	Funded by CMAQ grant
30	Millbrook and Spruce	6	6	2007		16.00	\$290,000	Developer to install
31	Chestnut and Teague	6	6	2004		15.67	\$290,000	Funded by CMAQ grant
32	Clinton and Vassar	3	3	2004		15.67	\$250,000	Developer to install
33	Dennett and Palm*	3	3	2004		15.67	\$290,000	Developer to install
34	Golden State and Ashlan Connector	1	1	2007	Muir Ellem	15.67	\$290,000	
35	Champlain and Fox Hill/Hickory Hill	6	6	2006		15.00	\$290,000	Developer to install
36	Champlain and Liberty Hill/Saybrook	6	6	2004		15.00	\$290,000	Funded by CMAQ grant
37	McKinley and Winery	4	4	2006		15.00	\$290,000	Developer to install
38	Perrin and Sommerville	6	6	2004		15.00	\$290,000	Funded by CMAQ grant
39	Bullard and Folk	2	2	2004		14.33	\$290,000	HSIP 2008
40	Olive and SR 99 SB off	3	50% Cal Trans	2007		14.00	\$400,000	Funded by CMAQ grant
41	Shields and Sunnyside	4	4	2006		14.00	\$290,000	
42	Barstow and Tenth	4	3	2007		13.67	\$290,000	
43	North/Parkway and 99 SB off - ramp	3	50% Cal Trans	2004		13.67	\$300,000	Measure "C" project
44	Cedar and North	3	3	2006		13.00	\$688,000	Funded by CMAQ grant
45	Clovis and Lamona	4	4	2004		13.00	\$250,000	
46	Dakota and Fowler	4	4	2004		12.67	\$290,000	Funded by CMAQ grant
47	Brawley and Shields	1 & 3	50% County	2004		12.00	\$290,000	
48	Clinton and Valentine	3	50% Clovis/City	2004		11.67	\$290,000	Measure "C" project
49	Huntington and Peach	5	5	2006		11.67	\$290,000	Developer to install
50	Olive and West	3	3	2004		11.67	\$250,000	Funded by CMAQ grant
51	Amador and Trinity*	3	3	2004		9.67	\$290,000	Developer to install
52	Figarden and Sierra	2	2	2006	Columbia Ellem	11.00	\$250,000	
53	Perrin and Willow	6	6	2004		11.00	\$350,000	Measure "C" project
54	Belmont and SR 99 NB off	3	50% Cal Trans	2006		10.00	\$400,000	Developer to install
55	Bullard and Dante	2	2	2004		10.00	\$290,000	Funded by CMAQ grant
56	Buller and Willow	5	3	2004		10.00	\$250,000	
57	Parkway and Shields	3	25% County	2004		10.00	\$290,000	
58	Marks and McKinley	3	50% Cal Trans	2004		9.00	\$400,000	
59	Belmont and SR 99 SB off	3	25% County	2004		7.00	\$290,000	
60	Marks and Olive	3	50% County	2004		6.33	\$290,000	Developer to install
61	Fruit and Jensen	3	3					

* Meets the criteria for the school signal warrant only.

** Meets the criteria for traffic signal and school signal warrants.

PRIORITY RANKING

Priority ranking is determined by assigning points attributed to annual daily traffic and peak hour traffic volumes, reported collisions, proximity of a school and/or other pedestrian generators, need for signal coordination, and engineering judgment.

1. Interconnect with existing Fresno/Belmont traffic signal. Requires upgrade of existing signal equipment.



ATTACHMENT "B"

Print Date: 12/23/2009
 Prepared by: L Barkley
 Checked by: M.S.Tyler PE
 S Mozier PE,TE

2010 PRIORITY LIST FOR WARRANTED LEFT TURN SIGNALS

Intersection	Council District(s)	% Other Jurisdictions	School located within 1/4-mile	Year Included in TS Impact Fee	Total Points	Construction Cost Estimate	Comments
1 Clinton and First	7			2004	38.67	\$290,000	Currently Funded (Prop 1B) HSIP (Grant Funded)
2 Belmont and Maple	7			2004	33.67	\$510,100	
3 Millbrook and Shields	4 & 7		Fulton	2004	30.00	\$290,000	
4 Dakota and First	4 & 7			2004	27.38	\$516,100	Design Funded, HSIP GRANT Funded by ARRA grant
5 Emerson and Marks (SL)	1		Slater	2007	27.00	\$180,000	
6 Chestnut and Shields	4	50% County	Scandinavian	2004	25.33	\$290,000	
7 Palm and Sierra	2	25% County	Kratt	2004	25.00	\$290,000	Requires County Participation Left Turn Phasing needed on Perrin only (Existing LTP N/S)
8 Foxhill/Saybrook and Perrin	6		Fresno Christian	2007	24.67	\$20,000	
9 Alluvial and Cedar*	6		Fresno High	2006	24.00	\$290,000	
10 McKinley and Palm	1 & 3		Tenaya	2006	21.67	\$290,000	
11 Bullard and Fruit	2	50% County	St Anthony of Padua	2004	21.00	\$290,000	Design Funded, Requires County Participation Currently Funded
12 Bullard and Maroa	2	25% County	Roeding	2004	20.67	\$290,000	
13 Dakota and West	1			2004	20.00	\$290,000	
14 Hughes and Shields	1			2004	17.33	\$290,000	
15 Cedar and Eleventh	6		Fresno Christian	2007	17.00	\$290,000	
16 Cedar and Teague	6		Clovis West	-	17.00	\$200,000	
17 Barstow and Palm*	2		Gibson Elem & Bullard High	2004	16.33	\$290,000	(Existing LTP N/S)
18 Alluvial and Millbrook	6			2006	16.00	\$290,000	
19 Peach and Tulare	5 & 7	25% County	Easterby	2004	15.67	\$290,000	
20 Bullard and Forkner	2		Malloch	2006	14.67	\$290,000	
21 Bulldog and Cedar	4			2004	12.33	\$290,000	Requires Railroad Preemption Upgrade
22 R and Tulare	3			2004	11.00	\$290,000	(Existing LTP N/S)
23 Blackstone and Sierra*	2 & 6			2006	10.33	\$290,000	(Existing LTP N/S)
24 Blackstone and Gettysburg*	7			2006	9.67	\$177,495	
25 Barstow and West	2	25% County		2006	8.33	\$290,000	Design Funded, Requires County Participation

PRIORITY RANKING

Priority ranking is determined by adding points attributed to vehicular traffic, number of reported left-turn type collisions, proximity of a school and/or other pedestrian generators, and engineering judgment.

* Previously met warrants restudied after 3 years now location no longer meets warrants



Intersection Traffic Flow Improvement 2010 Priority List

RANK	LOCATION	COUNCIL DISTRICT	PROPOSED IMPROVEMENTS	COST ESTIMATE	TOTAL PEAK HOUR VOLUMES SERVED AT INTERSECTION		AVERAGE DELAY PER VEHICLE (sec) WITH EXISTING LANE CONFIGURATION		AVERAGE DELAY PER VEHICLE (sec) WITH PROJECT		2006 LOS (AM/PM), NO PROJECT	2006 PM PEAK HOUR	2006 AM PEAK HOUR	2006 LOS (AM/PM) WITH PROJECT	2006 PM PEAK HOUR	2006 AM PEAK HOUR	PROJECT TOTAL SCORE	REMARKS
					2006 AM PEAK HOUR	2006 PM PEAK HOUR	2006 PM PEAK HOUR	2006 AM PEAK HOUR	2006 PM PEAK HOUR	2006 AM PEAK HOUR								
1	First and Bullard	4,6	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,600,000	5102	5850	76.9	102.5	E / F	45.1	61.3	D / E	39.0					
2	Palm and Shaw	2,7	Dual left turn lanes and dedicated right turn lanes on all four legs	\$2,200,000	5903	6670	54.1	83.0	D / F	39.8	51.9	D / D	36.0					
3	Fresno and Bullard	6	Dual left turn improvements, dedicated right turn lanes	\$1,900,000	4782	6382	43.7	120.0	D / F	30.9	63.8	C / E	35.0					
4	Blackstone and Shields	7	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,900,000	5011	6242	64.5	69.7	E / E	36.8	36.7	D / D	32.0					
5	Clinton and Weber	1	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,500,000	3008	3372	41.5	59.3	D / E	20.7	27.2	C / C	25.0	Developer to install EB dual left				
6	Clovis and Jansen	5	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,300,000	3164	3183	63.0	41.8	E / D	30.4	29.9	C / C	23.0	Developer to install				
7	Willow and Bullard	4,6	Dual left turn lanes and dedicated right turn lanes on all four legs. Six lanes on Willow.	\$1,400,000	4680	4967	47.2	49.1	D / D	29.3	32.6	C / C	22.0					
8	Cedar and Nees	6	Dual left turn lanes and dedicated right turn lanes for eastbound, westbound	\$550,000	3825	4470	40.9	51.8	D / D	33.9	35	C / C	20.0					
9	Clovis and Kings Canyon	5	Dedicated right turn pocket for westbound and northbound dual left turn lanes.	\$600,000	3183	4296	31.1	40.1	C / D	26	35.7	C / D	13.0					
10	Shaw and Golden State	2	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,600,000	3878	4279	32.8	57.4	C / E	26.3	50.5	C / D	12.0					
11	First and Nees	6	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,000,000	3696	4362	33.9	54.6	C / D	24.8	34.7	C / C	11.0	Developer to install				
12	Bullard and West	2	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,900,000	4366	3698	52.2	38.0	D / D	36.2	26.1	D / C	10.0					
13	Clovis and Shields	4	Dual left turns for northbound, westbound dual left turn lanes and dedicated right turn lanes on all four legs	\$1,900,000	3395	3826	39.5	27.3	D / C	31.1	23.3	C / C	5.0					
14	Blackstone and McKinley	7	Dual lefts and dedicated right turn lanes for eastbound, southbound	\$1,900,000	3400	4172	31.4	34.3	C / C	25.1	25.7	C / C	4.0					
15	Figarden and Bullard	2	Dual left turn lanes for northbound.	\$1,300,000	3267	3480	43.2	32.5	D / C	44.4	24.1	D / C	3.0	Developer to install				
16	Maple and McKinley	4	Dedicated right turn pocket for eastbound.	\$1,250,000	2936	3441	32.4	33.4	C / C	25.5	25.9	C / C	2.0					
			LOS Control Delay per Vehicle															
			A < 10 sec															
			B > 10-20															
			C >20-35															
			D >35-55															
			E >55-80															
			F >80															